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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,556	09/15/2003	Alex I. Krymski	M4065.0961/P961	9060
24998	7590	08/09/2004	EXAMINER	
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP			NGUYEN, KHAI M	
2101 L STREET NW			ART UNIT	
WASHINGTON, DC 20037-1526			PAPER NUMBER	
			2819	

DATE MAILED: 08/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/661,556

Applicant(s)

KRYMSKI, ALEX I.

Examiner

Khai M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-60 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-20, and 28-60 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7, 9-13 and 21-27 is/are rejected.
- 7) ☒ Claim(s) 5 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/15/2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

1. The application has not been checked to the extent necessary to determine the presence of all possible typographical and grammatical errors. However, Applicant's cooperation is requested in correcting any errors of which he/she may become aware in the application.

### ***Drawings***

2. This application has been filed with informal drawings, which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 2, line 3, recites, "whether said one of said respective low voltage and said high voltage is provided to a capacitance in said set" is unclear and/or lacks antecedent basis. Correction/clarification is required.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3, 13, 21-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee (US 2002/0122129 A1).

Regarding claims 1-3, Lee discloses a ramp signal generator (120), comprising: an array of capacitances (C11...C1n), each with a first lead connected to provide a combined output voltage (right side of the array) and a second lead (coupled to the switches S11...S1n); and voltage control circuitry controlling a voltage on each of a set of two or more capacitances in the array (the circuit that controls the switches), the voltage control circuitry controlling a voltage on each of the set of capacitances to produce a ramp signal (Vramp) of the combined output voltage.

Regarding claim 13, Lee discloses (Fig. 5) a ramp generator (120; see Figs. 7-9 and the rejected claims above); and an ADC comparison circuitry (104) that receives an analog input signal (analog image data) and the ramp signal (Vramp), and the ADC comparison circuitry providing a digital output.

Regarding claims 21-22, Lee discloses an apparatus comprising an array of pixels; a signal processing circuit that receives analog signals for pixel cells in the pixel

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array and provides, a for each analog signal, corresponding digital signal (see Fig. 2); and the claimed ramp signal generator (see the rejected claims 1-3).

Regarding claim 23, Lee's image sensor comprises two ramp-generating circuits (Figs. 8-9).

Regarding claim 24, Lee's image sensor including columns of pixels and an array of column processing circuits (see [0001]-[0013]).

Regarding claims 25-27, Lee's image sensor, wherein each column processing circuit includes an ADC (Fig. 5) that receives ramp signals (from 120).

Claims 4, 6-7, and 9-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Krymski et al. (US 6,476,751).

Regarding claims 4, Krymski et al. discloses (Figs. 2-3) a ramp ADC, comprising: a multi-bit shift register (latches) with a clock signal input (clock), a reset signal input (where it receives the feedback signal) and, for each bit, an output (LSB... MSB); a clock signal circuitry (504; Fig. 5); a reset signal circuitry (the feedback loop) that provides a reset signal to the shift register's reset signal input; and an array of capacitors (C...) (Fig. 3) having a common top plate (coupled to the node 306) and each of the array of capacitors having a bottom plate switched (transistors) sequentially to one of a low reference voltage (ground) and a high reference voltage (Vdd) in response to a respective shift register bit's output, a charge on each of the capacitors in the array added to a ramp output signal on the top plate in response to a value in the shift register.

Regarding claims 6-7, Krymski et al. ramp ADC output signal from the ramp generator is either buffered or not buffered signal.

Regarding claims 9-12, Krymski et al. discloses the capacitors of the capacitor array varies in size (see Fig. 3)

### ***Allowable Subject Matter***

7. Claims 14-20, and 28-60 are allowed.
8. Claims 5 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Prior Art***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure (see the attached PTO-892).

### ***Contact Information***

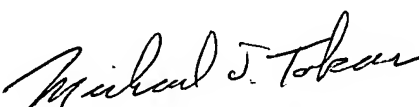
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khai M. Nguyen whose telephone number is 571-272-1809. The examiner can normally be reached on 8:30 to 5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J Tokar can be reached on 571-272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KN  
July 29, 2004

  
**Michael Tokar**  
Supervisory Patent Examiner  
Technology Center 2800